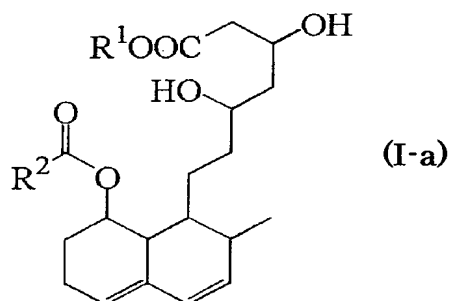


## CLAIMS

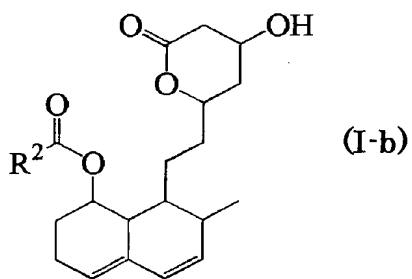
1. A process for producing a compound (II-a) or a compound (II-b) wherein a microorganism having an activity of producing compound (II-a) or a compound (II-b) from a compound (I-a) or a compound (I-b), having no ability to sporulate and showing no hyphal growth, a culture of said microorganism, or a treated product of said culture is used as an enzyme source, and the process comprises: allowing the compound (I-a) or the compound (I-b) to exist in an aqueous medium; allowing the compound (II-a) or the compound (II-b) to be produced and accumulated in said aqueous medium; and collecting the compound (II-a) or the compound (II-b) from said aqueous medium, and wherein the compound (I-a) is a compound represented by the formula (I-a) (herein referred to as compound (I-a)) :



wherein

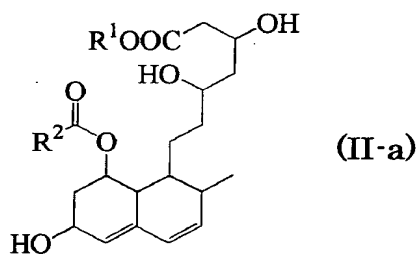
R<sup>1</sup> represents a hydrogen atom, a substituted or unsubstituted alkyl, or an alkali metal, and R<sup>2</sup> represents a substituted or unsubstituted alkyl, or a substituted or unsubstituted aryl;

the compound (I-b) is a lactone form of compound (I-a) represented by the formula (I-b) (herein referred to as compound (I-b)):



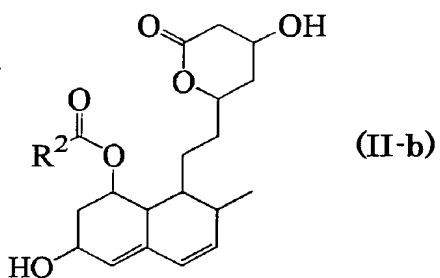
wherein  $\text{R}^2$  has the same definition as the above;

the compound (II-a) is a compound represented by the formula (II-a) (herein referred to as compound (II-a)):



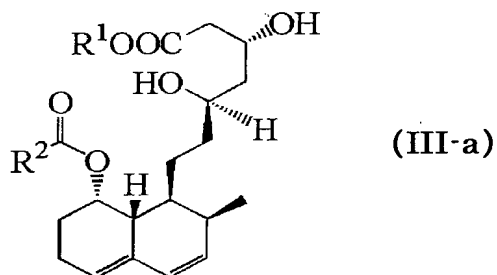
wherein  $\text{R}^1$  and  $\text{R}^2$  have the same definitions as the above; and

the compound (II-b) is a lactone form of compound (II-a) represented by the formula (II-b) (herein referred to as compound (II-b)):



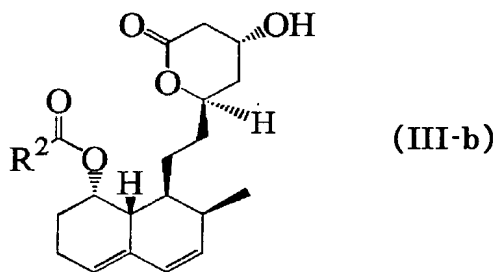
wherein R<sup>2</sup> has the same definition as the above.

2. The process according to claim 1, wherein the compound (I-a) is a compound represented by the formula (III-a) (herein referred to as compound (III-a)):



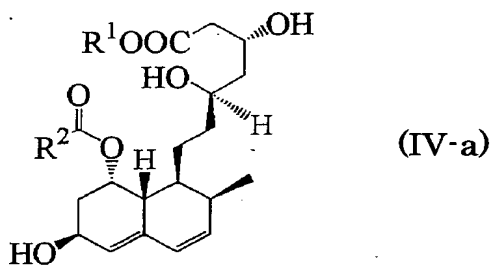
wherein R<sup>1</sup> represents a hydrogen atom, a substituted or unsubstituted alkyl, or an alkali metal, and R<sup>2</sup> represents a substituted or unsubstituted alkyl, or a substituted or unsubstituted aryl;

the compound (I-b) is a compound represented by the formula (III-b) (herein referred to as compound (III-b)):



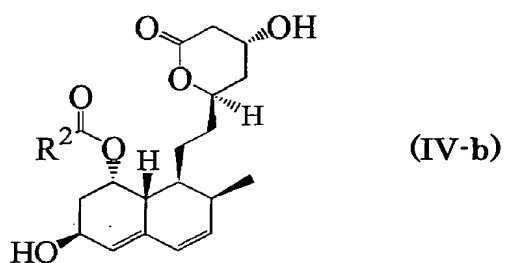
wherein R<sup>2</sup> has the same definition as the above;

the compound (II-a) is a compound represented by the formula (IV-a) (herein referred to as compound (IV-a)):



wherein  $R^1$  and  $R^2$  have the same definitions as the above; and

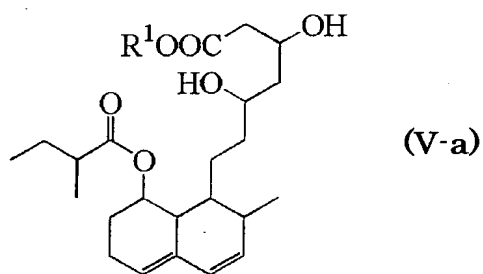
the compound (II-b) is a compound represented by the formula (IV-b) (herein referred to as compound (IV-b)):



wherein  $R^2$  has the same definition as the above.

3. The process according to claim 1, wherein

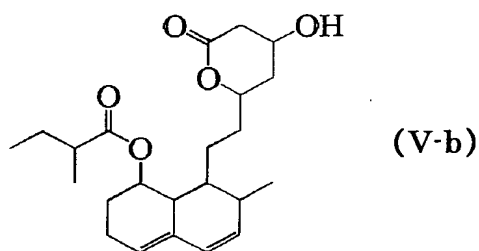
the compound (I-a) is a compound represented by the formula (V-a) (herein referred to as compound (V-a)):



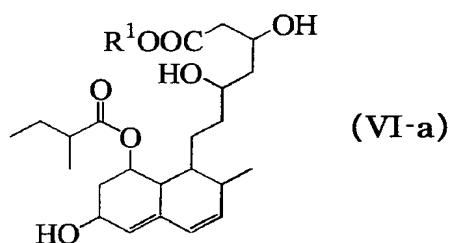
wherein  $R^1$  represents a hydrogen atom, a substituted or unsubstituted alkyl, or an alkali metal;

the compound (I-b) is a compound represented by the formula (V-b)(herein referred to

as compound (V-b));

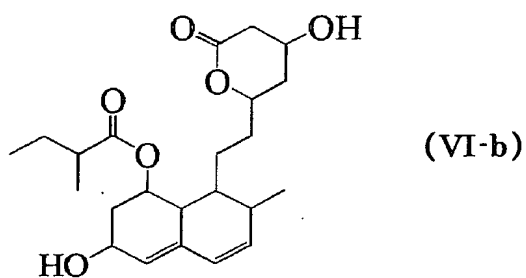


the compound (II-a) is a compound represented by the formula (VI-a) (herein referred to as compound (VI-a)):

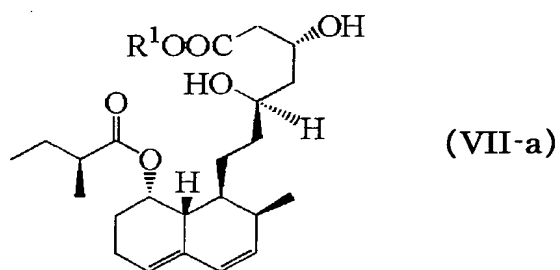


wherein  $R^1$  has the same definition as the above; and

the compound (II-b) is a compound represented by the formula (VI-b) (herein referred to as compound (VI-b)):

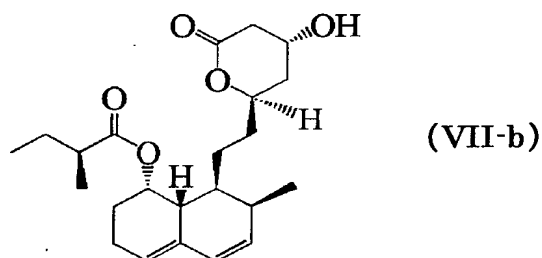


4. The process according to claim 1, wherein the compound (I-a) is a compound represented by the formula (VII-a) (herein referred to as compound (VII-a)):

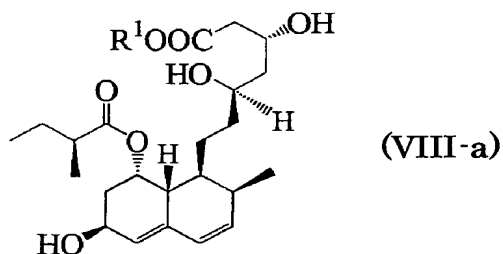


wherein  $R^1$  represents a hydrogen atom, a substituted or unsubstituted alkyl, or an alkali metal;

the compound (I-b) is a compound represented by the formula (VII-b) (herein referred to as compound (VII-b)):



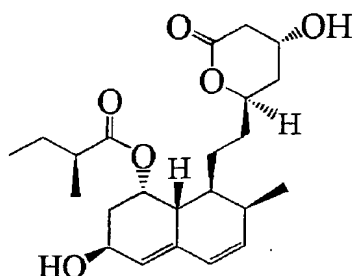
the compound (II-a) is a compound represented by the formula (VIII-a) (herein referred to as compound (VIII-a)):



wherein  $R^1$  has the same definition as the above; and

the compound (II-b) is a compound represented by the formula (VIII-b) (herein referred

to as compound (VIII-b)):



(VIII-b)

5. The process according to claim 1, wherein the treated product of the culture of the microorganism is a treated product selected from cultured cells; treated products such as dried cells, freeze-dried cells, cells treated with a surfactant, cells treated with an enzyme, cells treated by ultrasonication, cells treated by mechanical milling, cells treated by solvent; a protein fraction of a cell; and an immobilized products of cells or treated cells.

6. The process according to claim 1, wherein the microorganism is selected from those belonging to the genus *Mycobacterium*, *Corynebacterium*, *Brevibacterium*, *Rhodococcus*, *Gordona*, *Arthrobacter*, *Micrococcus*, *Cellulomonas* and *Sphingomonas*.

7. The process according to claim 1, wherein the microorganism is one selected from *Mycobacterium phlei*, *Mycobacterium smegmatis*, *Mycobacterium thermoresistibile*, *Mycobacterium neoaurum*, *Mycobacterium parafortuitum*, *Mycobacterium gilvum*, *Rhodococcus globerulus*, *Rhodococcus equi*, *Rhodococcus erythropolis*, *Rhodococcus rhodochrous*, *Rhodococcus rhodnii*, *Rhodococcus ruber*, *Rhodococcus coprophilus*, *Rhodococcus fascians*, *Gordona amarae*, *Gordona rubropertinctus*, *Gordona bronchialis*, *Gordona sputi*, *Gordona aichiensis*, *Gordona terrae*, *Corynebacterium glutamicum*, *Corynebacterium mycetoides*, *Corynebacterium variabilis*, *Corynebacterium ammoniagenes*, *Arthrobacter crystallopoietes*, *Arthrobacter duodecadis*, *Arthrobacter ramosus*, *Arthrobacter sulfureus*, *Arthrobacter aurescens*,

*Arthrobacter citreus*, *Arthrobacter globiformis*, *Brevibacterium acetylicum*, *Brevibacterium linens*, *Brevibacterium incertum*, *Brevibacterium iodinum*, *Micrococcus luteus*, *Micrococcus roseus*, *Cellulomonas cellulans*, *Cellulomonas cartae*, *Sphingomonas paucimobilis*, *Sphingomonas adhaesiva*, and *Sphingomonas terrae*.

8. The process according to claim 1, wherein the microorganism is one selected from *Mycobacterium phlei* JCM5865, *Mycobacterium smegmatis* JCM5866, *Mycobacterium thermoresistibile* JCM6362, *Mycobacterium neoaurum* JCM6365, *Mycobacterium parafortuitum* JCM6367, *Mycobacterium gilvum* JCM6395, *Rhodococcus globerulus* ATCC25714, *Rhodococcus equi* (ATCC21387), *Rhodococcus equi* (ATCC7005), *Rhodococcus erythropolis* ATCC4277, *Rhodococcus rhodochrous* ATCC21430, *Rhodococcus rhodochrous* ATCC13808, *Rhodococcus rhodnii* ATCC35071, *Rhodococcus ruber* JCM3205, *Rhodococcus coprophilus* ATCC29080, *Rhodococcus fascians* ATCC12974, *Rhodococcus fascians* ATCC35014, *Gordona amarae* ATCC27808, *Gordona rubropertinctus* IFM-33, *Gordona rubropertinctus* ATCC14352, *Gordona bronchialis* ATCC25592, *Gordona sputi* ATCC29627, *Gordona aichiensis* ATCC33611, *Gordona terrae* ATCC25594, *Corynebacterium glutamicum* ATCC13032, *Corynebacterium glutamicum* ATCC14020, *Corynebacterium glutamicum* ATCC19240, *Corynebacterium mycetoides* ATCC21134, *Corynebacterium variabilis* ATCC15753, *Corynebacterium ammoniagenes* ATCC6872, *Arthrobacter crystallopoietes* ATCC15481, *Arthrobacter duodecadis* ATCC13347, *Arthrobacter ramosus* ATCC13727, *Arthrobacter sulfureus* ATCC19098, *Arthrobacter aurescens* ATCC13344, *Arthrobacter citreus* ATCC11624, *Arthrobacter globiformis* ATCC8010, *Brevibacterium acetylicum* ATCC953, *Brevibacterium linens* ATCC19391, *Brevibacterium linens* ATCC9172, *Brevibacterium incertum* ATCC8363, *Brevibacterium iodinum* (IFO3558), *Micrococcus luteus* ATCC4698, *Micrococcus roseus* ATCC186, *Cellulomonas cellulans* ATCC15921, *Cellulomonas cartae* ATCC21681, *Sphingomonas paucimobilis* ATCC29837, *Sphingomonas adhaesiva* JCM7370, and *Sphingomonas terrae* ATCC15098.



9. The process according to claim 1, wherein the microorganism is *Gordona* sp. ATCC19067.

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